



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,849	01/16/2004	Gennadi Finkelshstein	P24712	5103
7055 7590 06/14/2010 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER TOOMER, CEPHIA D				
ART UNIT 1797		PAPER NUMBER		
NOTIFICATION DATE 06/14/2010		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary

Application No.

10/757,849

Applicant(s)

FINKELSHTEIN ET AL.

Examiner

Cephia D. Toomer

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 70-97.99, 101-117 and 119-143 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 70-96.99, 101-116, 119-130 and 132-143 is/are rejected.
- 7) ☒ Claim(s) 97.117 and 131 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Prioritization's Patent Drawing Review (PTO-544)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on August 7, 2007 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 70-97, 99, 101-116, 119-130, and 132-143 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsang (US 6,818,334) in view of Amendola (US 20020083643).

Tsang teaches the production of two solutions, one comprising metal borohydride, water and alkali or alkaline earth metal hydroxide (NaOH or KOH) (solution A), the other comprising water and optional additives (solution B), which are then

combined thus diluting each and which then forms a mixture used as a fuel in a fuel cell (see abstract; col. 1, line 42 through col. 2, line 34; col. 3, line 54 through col. 4, line 45). Tsang teaches that the optional additives may be alcohols, which are known anti-freeze agents, and other conventional additives (see col. 4, lines 1-9).

Tsang teaches that solution A and solution B are held in separate containers or compartments until they are mixed together (see col. 4, lines 62 to col. 5, lines 1-5). Tsang teaches the limitations of the claims other than the differences that are discussed below.

In the first aspect, Tsang differs from the claims in that he does not specifically teach the claimed percentage of decomposition (not more than 2%). However, it would have been obvious to one of ordinary skill in the art to have selected proportions of the components within the limits disclosed to determine the workable range of decomposition. This would be especially true since Tsang is concerned that the fuel will become unstable during long-term storage.

In the second aspect, Tsang differs from the claims in that he does not specifically teach the claimed hydroxide ion concentration (pH). However, Amendola suggests that higher pH is more effective, as well as suggests starting with a concentrated solution and adding water during use (see paragraphs 33 and 34).

It would have been obvious to one of ordinary skill in the art to employ workable pH ranges while keeping in mind the intention of diluting and the desired generating output, as well as Amendola teaching that the higher pH helps stabilize the composition.

With respect to the claimed package or container, it would have been obvious to one of ordinary skill in the art at the time of the invention to package or contain the obvious storage stable concentrate along with a package or container containing the necessary solvent for obtaining the optimal fuel mixture and appropriate instructions because (1) such avoids problems of dosing the proper amounts of the two components by the end user; and (2) such avoids problems of dosing with impure solvent. Tsang clearly sets forth that these compositions are in separate packages or containers and that he mixes them to form the fuel. With respect to the package, the use of a one piece construction containing two compartments instead of the structure disclosed in Tsang would be merely a matter of obvious engineering choice which would help to avoid the pitfalls set forth above.

Response to Argument

Applicant's arguments submitted in the Reply Brief of December 8, 2009 have been considered but are not deemed persuasive.

Applicant argues that the examiner's statement at page 3, next-to-last paragraph of the Examiner's Answer is misleading in that it suggests that the mixture of solution A and B as such is used as the fuel

In response to Applicant's arguments, the recitation for use as a fuel in a direct liquid fuel cell has not been given patentable weight. This language does not make a manipulative difference in the process of preparing a metal hydride solution. Tsang clearly teaches a metal borohydride concentrate that is diluted with water. Tsang

therefore meets Appellant's objective of preparing a metal hydride containing liquid from a storage-stable concentrate.

Applicant argues that in the Examiner's Answer it is alleged that Tsang discloses compartments. However, Applicant argues that is clearly not the case. Applicant argues that Tsang is directed to operations on a large industrial scale.

As stated in the Examiner's answer, the examiner finds no such teaching of an industrial scale process within Tsang. The mere mention of pumps metering the solutions from the containers to the reaction chamber does not imply an industrial scale process. The examiner respectfully disagrees with Applicant's interpretation of Tsang. As stated in the Examiner's Answer, Tsang teaches that the solutions are stored or packaged in separate containers until they are ready to be mixed. Therefore, one could reasonably assume that no matter what scale the process may be, i.e., large scale or small scale, that enough hydrogen would be generated for the intended end use.

Applicant argues that Amendola does not teach that a higher pH is more effective or that he starts with a concentrated solution.

At paragraph 33 Amendola teaches that stabilizing agent maintains the metal hydride solution at a pH of greater than about 7. At paragraph 34, Amendola teaches that the stabilizing agents are added to concentrated solutions of sodium borohydride.

The remainder of Applicant's arguments that are germane to the issue at hand refer to Tsang teaching that the solutions are stored in "tanks" as opposed to Applicant's "containers".

It is the examiner's position that these terms are the same or at least overlap because to the lay person a container is an object that contains material as does a tank. It is merely semantics absent some actual structural difference.

Applicant argues that the fuel cell is portable whereas that of Tsang is not. However, this argument is not persuasive because it is well settled that a claimed device being portable or movable is not sufficient to patentably distinguish over an otherwise old device unless there are new or unexpected results.

2. Claims 97, 117 and 131 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 571-272-1126. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cephia D. Toomer/
Primary Examiner
Art Unit 1797

10757849\20100607